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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/935,457	08/23/2001	Niranjan Damera-Venkata	10006301-1	9595

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HEWLETT-PACKARD COMPANY  
Intellectual Property Administration  
P.O. Box 272400  
Fort Collins, CO 80527-2400

EXAMINER

ALAVI, AMIR

ART UNIT	PAPER NUMBER
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2621

DATE MAILED: 09/15/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

09/935,457

**Applicant(s)**

DAMERA-VENKATA, NIRANJAN

**Examiner**

Amir Alavi

**Art Unit**

2621

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 23 August 2001.  
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1-21 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.  
10) ☒ The drawing(s) filed on 23 August 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 2-4.  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.  
5) ☐ Notice of Informal Patent Application (PTO-152)  
6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### **Claim Rejections - 35 USC § 102**

- The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

- Claims 1,5-6,8-9,13-14,16-17 and 21 are rejected under 35 U.S.C. 102(e) as being anticipated by Brunk (USPN 6,694,041 B1).

Regarding claim 1, Brunk discloses: detecting first type pixel blocks of an input image, said first type pixel blocks being dependent on pixel values within said first type pixel blocks (Please note, column 3, lines 56-58. As indicated a modified error diffusion method that embeds a watermark comprising a set of binary values at specified dot locations in a binary image); and modulating said first type pixel blocks of said input image based on said information to produce an output image, said output image including said input image and said information (Please note, column 3, lines 59-64. As indicated this method starts with an up-sampled binary host image, a list of dot locations in a binary image and corresponding binary values for a watermark, this method assigns to these locations the corresponding values of the watermark and tries to improve the image with an error diffusion algorithm at the other end locations. In this regard, Examiner considers this assigning to correspond to Applicant's modulating).

Regarding claim 5, Brunk discloses, wherein diffusing halftone errors of each pixel block of said input image into neighboring pixel blocks of said input image on a pixel block by pixel block basis (Please note, column 5, lines 27-35. As indicated the watermark can be directly embedded into a halftone and the error diffusion process is changed so that the threshold used to calculate the binary output values is modulated by the watermark signal).

Regarding claim 6, Brunk discloses, wherein modulating said first type pixel blocks of said input image includes replacing said first type pixel blocks of said input image with dot shape blocks such that said information is represented by said

dot shape blocks (Please note, column 3, lines 59-64. As indicated this method starts with an up-sampled binary host image, a list of dot locations in a binary image and corresponding binary values for a watermark, this method assigns to these locations the corresponding values of the watermark and tries to improve the image with an error diffusion algorithm at the other end locations. In this regard, Examiner considers this assigning, which in fact does the replacing to correspond to Applicant's modulating).

Regarding claim 8, Brunk discloses, wherein some of said dot shape blocks represents binary data (Please note, column 3, lines 59-61. As indicated this method starts with an up-sampled binary host image, a list of dot locations in a binary image and corresponding binary values for a watermark).

Regarding claim 9, arguments analogous to those presented for claim 1, are applicable.

Regarding claims 13-14, arguments analogous to those presented for claims 5-6, respectively, are applicable.

Regarding claim 16, arguments analogous to those presented for claim 8, are applicable.

Regarding claim 17, arguments analogous to those presented for claims 1 and 5, are applicable.

Regarding claim 21, arguments analogous to those presented for claim 6, are applicable.

### **Claim Rejections - 35 USC § 103**

- The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

- Claims 2-4,7,10-12,15 and 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brunk (USPN 6,694,041 B1) in view of Chang (USPN 6,256,398 B1).

Regarding claim 2, Brunk discloses: detecting first type pixel blocks of an input image, said first type pixel blocks being dependent on pixel values within said first type pixel blocks (Please note, column 3, lines 56-58. As indicated a modified error diffusion method that embeds a watermark comprising a set of binary values at specified dot locations in a binary image); and modulating said first type pixel blocks of said input image based on said information to produce an output image, said output

image including said input image and said information (Please note, column 3, lines 59-64. As indicated this method starts with an up-sampled binary host image, a list of dot locations in a binary image and corresponding binary values for a watermark, this method assigns to these locations the corresponding values of the watermark and tries to improve the image with an error diffusion algorithm at the other end locations. In this regard, Examiner considers this assigning to correspond to Applicant's modulating).

However, Brunk, does not specifically disclose, wherein detecting minority pixel blocks of said input image, said minority pixel blocks being pixel blocks that include a majority of pixels that contrast with an image background.

On the other hand, Chang, in the same field of endeavor discloses, wherein detecting minority pixel blocks of said input image, said minority pixel blocks being pixel blocks that include a majority of pixels that contrast with an image background (Please note, column 5, lines 6-7. As indicated the logical value of each cell is represented by the GP (glyph pixel) pixel's contrast with the BP (background pixel). In this regard, Examiner considers this glyph pixel, which contrast with the image background to correspond to Applicant's minority pixels).

Therefore, it would have been obvious to one of ordinary skill in the art, at the time of the invention, to utilize this minority pixels of Chang in Brunk's invention, because as Chang, on column 5, lines 10-12, discloses, such GP, which earlier was considered by the Examiner to correspond to Applicant's minority pixels

controls the interpretation of the data, for example, designating the length of the message).

Regarding claim 3, Chang discloses, wherein the minority pixel blocks include a majority of dark pixels (Please note, column 4, lines 14-23).

Regarding claim 4, Chang discloses, wherein the minority pixel blocks include a majority of dark pixels (Please note, column 4, lines 14-23).

Regarding claim 7, Chang discloses, wherein some of the dot shape blocks represents synchronization data (Please note, column 4, line 35).

Regarding claims 10-12, arguments analogous to those presented for claims 2-4, respectively, are applicable.

Regarding claim 15, arguments analogous to those presented for claim 7, are applicable.

Regarding claims 18-20, arguments analogous to those presented for claims 2-4, respectively, are applicable.



### **Other prior art cited**

- The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Cooper et al. (USPN 6,356,363 B1) is pertinent as teaching method for halftoning using interlocked threshold arrays or interlocked dot profiles.

Yu et al. (USPN 6,700,992 B1) is pertinent as teaching adaptive message embedding error diffusion method.

Lofgren et al. (USPN 6,608,911 B2) is pertinent as teaching digitally watermarking holograms for use with smart cards.

de Queiroz et al. (USPN 5,799,112) is pertinent as teaching method and apparatus for wavelet-based universal halftone image un-screening.

Au et al. (USPN 6,690,811 B2) is pertinent as teaching methods and apparatus for hiding data in halftone images.

Shaked et al. (USPN 6,763,121 B1) is pertinent as teaching halftone watermarking method and system.

Miyake (USPN 6,750,983 B1) is pertinent as teaching image processing apparatus and method.

### Contact Information

- Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Amir Alavi whose telephone number is (703) 306-5913.
- The Examiner can normally be reached on Monday through Thursday from 8:00 a.m. to 6:30 p.m. If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Leo Boudreau, can be reached at (703) 305-4706.

Any response to this action should be mailed to:

Assistant Commissioner for Patents

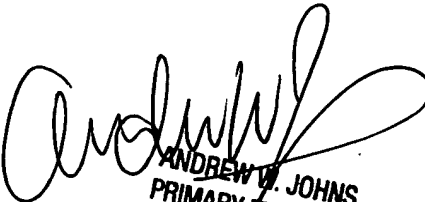
Washington, D.C. 20231

**Or faxed to:**

(703) 872-9306, ("draft" or "informal" communications should be clearly labeled to expedite delivery to Examiner)

**Hand delivered responses** should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA., Sixth Floor (Receptionist). Any inquiry of a general nature or relating to the status of this application should be directed to the T.C. Customer Service Office whose telephone number is (703) 306-0377.

AA  
Group Art Unit 2621  
09 September 2004

  
ANDREW W. JOHNS  
PRIMARY EXAMINER